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## THE RELATIONSHIP OF STRESS LEVEL WITH SMOKING DEPENDENCE IN TEENAGERS

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### Abstract

**Introduction:** Many teenagers said that smoking was their way to cope they stress experience, smoking makes them more relaxed, and they use it as an escape when they are stressed. The nicotine in cigarettes makes teenagers addicted to it, which affects their thoughts and behaviors and leads to smoking dependence. This research aims to analyze the relationship between stress levels and smoking dependence in teenagers.

**Methods:** This research was a quantitative research using a correlational design with a cross-sectional approach. The population of this research were X and XI grade students who smoked with a sample size of 45 respondents. The instrument in this research used a questionnaire. Univariate analysis using frequency distribution and percentage, bivariate analysis using the Spearman Rank test.

**Results:** The percentage of stress levels was (40.0%) detected to experience mild stress and (48.9%) detected to have moderate smoking dependence. From the spearmen rank analysis, the p-value (0.000) <  $\alpha$  (0.05) with contingency coefficient value is 0.526, meaning that there is a strong relationship between stress levels and smoking dependence.

**Conclusions :** Smoking dependence in teenagers can be reduced by reducing stress levels in teenagers so that teenagers are expected to manage stress well so as not to increase smoking dependence in teenagers.

**Keywords:** Stress Level, Smoking Dependence, Teenagers

### Introduction

Adolescence is a transition period between childhood and adulthood, a time where many changes occur. At this stage, perception of identity becomes very important and more logical, abstract and idealistic. Therefore, teenagers will face many new problems. At this stage, many teenagers experience very significant personality changes (Nurhidayati et al., 2021). Stress is a subjective experience based on an individual's perception of the situation. Stress is associated with expectations and reality that do not match. This situation gives rise to feelings of fear,

anger and frustration. Stress in teenagers can cause emotional changes, difficulty concentrating, academic decline, and unhealthy lifestyle behavior (Hastuti & Baiti, 2019).

Teenagers said that they were smoking as a way to deal with stress, for relaxing, and they use it as an escape from the stress of everyday life. When someone starts smoking, especially during adolescence, the risk of becoming dependent on cigarettes increases as the number of cigarettes per day increases. Nicotine in cigarettes can make teenagers addicted, affecting their thoughts and behavior, which can lead to dependence on cigarettes (Risidiana & Wahyu Proboningrum, 2019). The World Health Organization (WHO) reported that in 2021, the prevalence of smoking in Indonesia was 69.1 million and ranked third after China and India. The Indonesian tobacco map (2020) also showed that the average smoking rate among people aged > 15 years is 32.2%. Based on Rikesdas 2018, the age of Indonesian people first start smoking is 55.4% at the age of 15-19 years, in East Java, based on the Central Statistics Agency (2018), the proportion of smokers among teenagers aged  $\geq 15$  years also increased, from 27.69% (2017) to 30.66% (2018). Jember Regency is ranked 9th with the number of smokers at 28.4% (Riset Kesehatan Dasar, 2018)

Based on preliminary survey on 10 students who smoked at Vocational School was found that there were 30% experiencing heavy smoking dependence, 50% experiencing moderate smoking dependence and 20% experiencing light smoking dependence. There were 20% experiencing severe stress, 40% experiencing moderate stress and 40% experiencing mild stress. The negative impact of smoking on health, especially cancer, heart attacks, impotence, and problems with pregnancy and the fetus are clearly visible on every pack of cigarettes. Apart from having an impact on the organs in the body, the substances contained in cigarettes, especially nicotine, also have an impact on the psychological condition, nerves and function of the brain activity of active and passive smokers.

The previous research showed that there were emotional changes associated with smoking. Another previous research conducted in America found that the higher a person's stress level, the more cigarettes they smoke, whereas if a person stops smoking, the risk of stress will increase. This is the reason why quitting smoking is becoming increasingly difficult (Defie & Probosari, 2018). Based on phenomena, journal articles, and problems faced by teenagers that lead to smoking habits, researchers are interested in examining "The Relationship Between Stress Levels and Smoking Dependence in Teenagers".

## **Methods**

This research was carried out in May 2024 at Vocational School. This research was a quantitative research used a cross-sectional approach. The population in this research were all male students in class X and XI at SMK Ma'arif NU Kencong who smoked. The sample in this research was 45 students. The sampling technique uses total sampling. The variables in this research are stress level (independent variable) and smoking dependence (dependent variable). The criteria for respondents in this research were active male students at Vocational School, male students in class X and XL who smoked, male students who were willing to be research respondents.

This research instrument has been tested for validity and reliability. The stress level questionnaire uses the Depression Anxiety Stress Scale (DASS) (Sari et al., 2019) and the smoking dependence questionnaire used the Modified Fagerstrom Tolerance Questionnaire (Teenagers) (Biomedika & Kesehatan, 2023). The results of the validity test of the two instruments showed that the r-count value is greater than r-table where r-table is 0.361 so that all questions in this questionnaire are declared valid. The reliability results of the stress level instrument were 0.865 and the smoking dependence instrument was 0.703. Both instruments had a cronbach's alpha value greater than 0.60, which means both instruments were declared reliable.

During the research process, respondents were distributed questionnaires about levels of stress and smoking dependence. After the data was collected, researchers carried out data processing using the SPSS version 22 computer program. Statistical analysis in this research was univariate and bivariate. Univariate analysis was used to determine the characteristics of respondents, while bivariate analysis in this research was used to determine the correlation between stress level variables and smoking dependence determined using the Spearman Rank test. This research received ethical approval number: 438/KEPK/UDS/VI/2024.

## Results

### Responden Characteristic

The characteristics of the respondents in this study can be seen in the table below:

Table 1 Frequency Distribution of Respondent Demographic Data

Age	Frekuensi (f)	Persentase (%)
15	11	24,4
16	16	35,6
17	18	40,0
Class		

X	22	48,9
XI	23	51,1
Total	45	100.0

Based on Table 1, it is known that almost half of the 45 respondents were 18 students aged 17 years (40.0%) and a small portion were 11 students aged 15 years (24.4%). And almost half of them were 23 class XI (eleven) students (40.0%)

Table 2 Frequency Distribution of Demographic Data of Respondents' Parents

Categori	Frekuensi (f)	Persentase (%)
Father School		
Elementary School	16	35,6
Junior High School	19	42,2
Senior High School	10	22,2
Mother School		
Elementary School	13	28,9
Junior High School	21	46,7
Senior High School	11	24,4
Parent relation		
Close relation	26	57,8
Quit close relation	11	24,4
No close relation	8	17,8
Total	45	100.0

Based on Table 2, it is known that almost half of the 45 respondents (42.2%) and (46.2%) had parents with junior high school education. And of the 45 respondents, the majority (57.8%) had a close relationship with their parents or family.

### Stress Level

Stress level on respondent in this research can be seen in the table below:

Table 3 Frequency Distribution Based on Stress Level

Kategori Tingkat Stres		
Strees Level	Frekuensi (f)	Persentase (%)
Normal	12	26,7
Light	18	40,0
Moderate	9	20,0
Heavy	6	13,3
Total	45	100.0

Based on Table 3, it is known that almost half of the 45 respondents (40.0%) experienced mild stress and a small portion (13.3%) experienced severe stress.

### Smooking Dependence

Smooking dependence on respondent in this research can be seen in the table below:

Table 4 Frequency Distribution Based on Smooking Dependence

Ketergantungan	Frekuensi ( <i>f</i> )	Persentase (%)
Light	13	28,9
Moderate	22	48,9
Heavy	10	22,2
Total	45	100.0

Based on Table 4, it is known that of the 45 respondents, almost half (48.9%) experienced moderate smoking dependence and a small portion (22.2%) experienced heavy smoking dependence

### Stress Level and Smoking Dependence

Stress level and smoking dependence on respondent in this research can be seen in the table below:

Table 5. The correlation between stress level and smoking dependence

Stress Level	Smoking Dependence								Asymp. Sig	Correlation Coefficient
	Light		Moderate		Heavy		Total			
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%		
Normal	5	11,1	6	13,3	1	2,2	12	100	0.000	0.526
Light	8	17,8	9	20,0	1	2,2	18	100		
Moderate	0	0,0	6	13,3	2	6,7	9	100		
Heavy	0	0,0	1	2,2	5	11,1	6	100		
Total	13	28,9	22	48,9	10	22,2	45	100		

Based on Table 5, it is known that of the 45 respondents, 12 respondents with normal stress experienced moderate smoking dependence (13.3%), 18 respondents with mild stress experienced moderate smoking dependence (20.0%), 9 respondents with moderate stress experienced moderate smoking dependence (13.3%), and 6 respondents with severe stress experienced heavy smoking dependence (11.1%). The results of the Spearman Rank test obtained p value ( $0.000 < \alpha (0.05)$ ), so  $H_0$  was rejected, which means there is a relationship and continued with the correlation coefficient test and obtained a result of 0.526, which means there is a strong relationship so that overall there is a strong relationship between stress levels. with smoking dependence in teenagers

## **Discussion**

### **Stress Level**

The majority of respondents in this research experienced mild stress. Mild stress indicates that stress is temporary and will end when the cause is resolved. Emotional changes are one of the most common signs of stress. This condition causes a person to become irritable, frustrated, and often find it difficult to calm their mind (Mahmud & Uyun, 2016). The results of the questionnaire with the question "I have difficulty calming down after something disturbing" most respondents stated "often" (51.1%). This is because students have personal problems that are often considered unimportant by others, but these problems can cause anxiety for them. The research results also showed that of the 45 respondents, the majority were class XI, 23 respondents (51.1%). Previous research showed that the students who experienced the most stress were in class XI because class XI experiences more stress due to competition between classmates and fear of the final semester exam which will determine whether they will be promoted to class.

Stress is a specific reaction that occurs, caused by various different demands, such as when a person have a difficult challenge, have a threat or overcome inappropriate expectations from the people around them. Teenagers are the age group most vulnerable to stress. This is caused by the psychosocial aspects of the crisis they experienced in childhood. Especially in the process of finding identity. Teenagers experience a lot of stress due to their social life and environment (Ahmad et al., 2021). The previous research have been conclude that the stress felt by teenagers comes from family, school, social, friendship, learning and health problems. Teenagers may experience stress due to academic demands, poor test scores, arguments with peers, too much homework, and parents' expectations that are too high for their children (Andreani et al., 2020). Age factor was physical condition of people who are stressed can cause symptoms such as headaches, fatigue, dry mouth, shortness of breath, difficulty sleeping, excessive cold sweat, irritability, restlessness, and rapid mood swings (Maurida, Putri, Novitasari, et al., 2022). Everyone have different problems and own way of solving them. Stress management is one way for someone to deal with the stress they experience. Managing stress through stress management can help reduce the level of stress felt.

### **Smooking Dependence**

The majority of respondents in this research experienced moderate smoking dependence. This indicates smokers who consume 11-21 cigarettes per day with an interval of 31-60 minutes after waking up in the morning. The results of the questionnaire with the question "How much do you smoke in a day?" Most respondents said they smoked 16-25

cigarettes a day (55.6%). Respondents in this research were included in the average group of teenagers, namely aged between 15 and 17 years. Respondents who were moderate smokers were 27.3% at the age of 15 years, 31.8% at the age of 16 years, and 40.9% at the age of 17 years. This showed that there was a significant relationship between the respondent's age and smoking behavior, the more mature the teenager, the higher the level of smoking dependence.

Smoking behavior is influenced by negative emotions. Many people smoke to relieve negative emotions such as anger, anxiety and restlessness, it is not uncommon for them to consider smoking as a savior. The two addictive behaviors related to smoking are called psychological dependence by Green. People who engage in this behavior will increase the dose of tobacco used each time after the effects of smoking subside (Maurida & Silvanasari, 2023). Another factor that influences smoking behavior in teenagers is a lack of attention from parents so teenagers easily get cigarettes. Giving children the opportunity to do things without proper supervision. Parents' supervision of their children is often the only priority in learning. However, they also have to monitor their daily activities because this way they will know their child's activities from school to friendship. In this way, parents can arrange everything so that the child can ultimately behave well and correctly. This is supported by Abelo's research which states that genetic factors can also determine a person's level of dependence on cigarettes, such as whether one of their parents smokes or not (Ablelo et al., 2019). This is in accordance with social learning theory according to Miller and Dollard, teenagers only imitate the monitoring given by their parents. With a parent's low level of education, they will be less able to absorb information or less mature and developed. The lack of supervision is also caused by many parents who do not receive information about appropriate supervision in their teens so they tend to lack the knowledge to implement appropriate supervision (Ruffaida & Linasari, 2020).

This research result was in line with previous research. It showed that there were a relationship between the respondent's age and smoking habits. The majority of respondents in the smoking habit group were over 16 years old. In fact, respondents aged over 16 years are more likely to smoke because they feel they are adults and have the right to do whatever they want, including smoking. On the other hand, respondents under 16 years of age are still in the experimental stage and do not yet have a regular smoking category. This is the experimental stage (Binita et al., 2016). Another previous research have the same result. It showed the level of teenage smoking behavior is at a moderate level. Research showed that teenagers are very curious and tend to want to be adventurous and try things they have never tried before. Teenagers who smoke can provide pleasant physiological effects and prevent anxiety, relax and relieve fatigue (Maurida et al., 2023). Students' smoking behavior is caused by their

relatively young age, so that psychologically there are environmental imitation factors, factors to be accepted by the environment and prestige factors. The nicotine in cigarettes reacts in certain parts of the brain, which can help a person reduce stress and feel calmer, thereby encouraging teenagers to smoke more and causing smoking addiction.

### **The correlation among stress level and smoking dependence**

The results of the cross tabulation between variables showed that the level of stress in the mild category has a moderate category of smoking dependence, that is 20.0%. This Spearman Rank showed a correlation coefficient value of 0.526, which means there were a positive correlation. It was found that most of the respondents in this research experienced mild stress (66.7%) with moderate smoking dependence (50.0%), the majority of respondent were 17 years old and in class XI. Stress among respondents is caused by academic demand factors. There were educational, training and learning activities in the business world or industrial world which are related to students' skills (competencies) according to their field of research, and also the density of vocational practicums. Meanwhile respondents who smoke are because they feel like they are adults and have the right to do whatever they want and because there is a lack of attention from their parents and the environment, many people smoke.

.The average education level of respondents' parents is junior high school, where parents lack information and knowledge about proper supervision of their teenage children, which causes children to tend to smoke. Parents are required to meet various types of needs, including educational needs. Therefore, the family has a very big influence on children's growth and development. Basically, the family environment plays a role in the process of forming a child's personality. Parents are the main and first educators for their children so they must plan wisely to achieve happiness and are responsible for the success of their children's education (Ramadhani & Hendrati, 2019).

Stress and smoking are most likely to occur in teenagers. Teenagers who cannot adapt well to the demands or pressures, such as academic requirements, tend to experience stress and often solve their problems with other problems such as smoking. This is in accordance with the theory put forward by Leventhal and Cleary, which suggests that the increase in the frequency and intensity of smoking in teenagers is caused by the reactions caused by the substances contained in cigarettes. Smoking brings peace of mind, which is one of the reasons why stressed teenagers start smoking

Previous research showed that there were a relationship between stress levels and smoking behavior among teenagers. The relationship between stress levels and smoking



behavior is due to the fact that many teenagers face more complex demands and temptations. This can make teenagers feel depressed and stressed. Smoking can have a significant impact on perceived problems. Smoking can make them forget their problems, especially if they focus on a negative environment because teenagers' minds are only focused on the pleasure of smoking and forget about their problems. Moreover, when stress increases, smoking behavior will also increase (Maurida, Putri, & Rosalini, 2022). The results of this research are also in line with previous research who showed that there was no relationship between family support and smoking behavior among Akap bus drivers at Terboyo Terminal (P value = 0.251) (Nurdiannah et al., 2017). The results of this research also agreed with the results of Hasna's research which stated that there was no relationship between support. families with the use of e-cigarettes in those who started smoking when they were in high school in the city of Bekasi (P value = 0.238) (El Hasna et al., 2017).

The relationship between stress levels and smoking dependence during adolescence is caused by teenagers entering puberty. This makes teenagers more to try behaviors they have never tried before, both positive and negative, and increases their desire to know more about other things. Teenagers choose to smoke to relieve feelings of anger and anxiety caused by a stressful environment. This is very worrying because smoking has many negative effects on teenagers, including having a negative impact on health and reducing motivation to school.

## **Conclusion**

The conclusion of this research are most teenagers have stress levels in the mild category, most teenagers experience moderate smoking dependence and there is a relationship between stress levels and smoking dependence in teenagers.

## **Author Contributions**

All of author have contribution on collecting data and analysis.

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## **Conflict of Interest**

There is no conflict of interest.

## Data Availability Statement

Data about this research is stored on the researcher's PC

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